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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,384	01/09/2004	Hisao Ikeda	740756-2698	6104
22204	7590	10/18/2004	EXAMINER	
NIXON PEABODY, LLP 401 9TH STREET, NW SUITE 900 WASHINGTON, DC 20004-2128			MACCHIAROLO, PETER J	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/753,384

Applicant(s)

IKEDA, HISAO

Examiner

Peter J Macchiarolo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 9-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>0504, 0104</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Receipt is acknowledged of the pre-amendment filed 07/19/2004 which cancels claims 1-8 and presents new claims 1-16. The amendment has been entered and considered.

### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

3. The information disclosure statements (IDS) submitted on 05/19/2004 and 01/09/2004 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Drawings***

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the manufacturing method including forming the hole injection layer and then exposing it to a gas atmosphere must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet,

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even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

6. A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter.

7. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Objections***

8. **Claims 9-11 are objected to because of the following informalities:**

9. Claim 9 recites the hole injection layer is formed by phthalocyanine. The Examiner reads the hole injection layer is formed from phthalocyanine.

10. Claim 10 depends from canceled claim 1. The Examiner is interpreting the proper dependency to be on claim 9.

11. Claim 11 recites an “electron acceptable compound capable oxidizing phthalocyanine,” the Examiner reads, “electron acceptable compound capable of oxidizing phthalocyanine.”  
Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. **Claims 9, 10, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicant’s cited art, Ogawa et al (JP 2000-068068; “Ogawa”).**

13. Regarding claims 9, 10, and 12, Ogawa shows in figure 2, a manufacturing method of a light emitting device comprising an anode (4), a cathode (6), a light emitting layer (5b) disposed between said anode and said cathode, and a hole injection layer (5a) disposed between said anode and said cathode, the method comprising: forming said hole injection layer from copper

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phthalocyanine, and exposing said hole injection layer to gas atmosphere (electron acceptable NO<sub>2</sub>) after forming said hole injection layer.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**14. Claims 11, 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa.**

15. Regarding claim 11, Ogawa is silent to an electron acceptable compound capable of oxidizing phthalocyanine is doped in the hole injection layer.

16. However, Ogawa does teach that an electron acceptable gas, NO<sub>2</sub>, has strong oxidizing properties and this gas is directed over the phthalocyanine to increase hole injection efficiency.

One would be motivated to dope the phthalocyanine with an electron acceptable compound capable of oxidizing the hole injection layer in addition to exposing the hole injection layer to the oxidizing gas atmosphere to further increase hole injection efficiency.

17. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture the light emitting device of Ogawa by doping the hole injection layer with an electron acceptable compound capable of oxidizing phthalocyanine to increase the conductivity and hole injection efficiency of the phthalocyanine.

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18. Regarding claim 13, Ogawa is silent to the gas being oxygen.

19. However, both of these gases will oxidize phthalocyanine, and therefore, it would have been obvious to one having ordinary skill in the art that the time the invention was made to use oxygen, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. Further, one would be motivated to this configuration for a variety of reasons, including material availability and manufacturing processes with sensitive requirements.

20. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture Ogawa's light emitting device with exposing the hole injection layer to use oxygen instead of NO<sub>2</sub>, since both of these gases will oxidize phthalocyanine.

21. Regarding claim 14, Ogawa is silent to the electron acceptable compound being TCNQ-F4 or V<sub>2</sub>O<sub>5</sub>.

22. Further, both of these materials will oxidize phthalocyanine, and therefore, it would have been obvious to one having ordinary skill in the art that the time the invention was made to use TCNQ-F4 or V<sub>2</sub>O<sub>5</sub>, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. Further, one would be motivated to this configuration for a variety of reasons, including material availability and manufacturing processes with sensitive requirements.

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23. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to manufacture Ogawa's light emitting device with exposing the hole injection layer to dope phthalocyanine with TCNQ-F4 or  $V_2O_5$ , since both of these materials will oxidize phthalocyanine.

24. Regarding claims 15 and 16, the rejection, motivation, and reason for combining is the same as for rejected claims 9 and 11, and 14 above, since claims 15 and 16 only recite the apparatus which is manufactured from the above discussed method.

### ***Conclusion***

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

26. USPGPUB 20020057055 published May 16, 2002 to Yamazaki is evidence that oxygen will oxidize phthalocyanine. USPN 6293843 published September 25, 2001 to Toya is evidence that  $V_2O_5$  will oxidize phthalocyanine. For Applicant's convenience, the Examiner has provided herewith a computer translation of Ogawa.


27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Macchiarolo whose telephone number is (571) 272-2375. The examiner can normally be reached on 8:30 - 5:00, M-F.

28. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571) 272-2475. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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29. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'J. Williams', with a small 'pjm' stamp or mark to the left of the signature.A handwritten signature in black ink, appearing to be 'Joseph Williams', positioned above a rectangular stamp.

<b>Joseph Williams</b> <b>Primary Examiner</b> <b>AU 2879</b>
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